



INVESTOR IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP1 0EQ

23 MAY 2003

WIPO PCT

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.

Signed 

Dated 11 April 2003

Best Available Copy

**PRIORITY
DOCUMENT**
SUBMITTED OR TRANSMITTED IN
COMPLIANCE WITH RULE 17.1(a) OR (b)


04MAR02 00479 1 C69640
F01/7700 0-00-204963.3

THE PATENT OFFICE

F
MAR

02 FEB 2002

NEWPORT

The Patent Office

Cardiff Road
Newport
South Wales
NP10 8QQ

est for grant of a patent

notes on the back of this form. You can also get an
 every leaflet from the Patent Office to help you fill in
)

ur reference

WJ/jt

ent application number

Patent Office will fill in this part)

0204963.3

F 2 MAR 2002

name, address and postcode of the or of
 h applicant (underline all surnames)

SAM AUSTIN MARK DURRANT
 114 Oak Street
 NORWICH
 Norfolk NR3 3BP

ents ADP number (if you know it)

ie applicant is a corporate body, give the
 ntry/state of its incorporation

8336323001

e of the invention

IMPROVEMENTS IN CORNER PROTECTORS

ne of your agent (if you have one)

dress for service" in the United Kingdom
 which all correspondence should be sent
 (including the postcode)

i.p.21 Limited
 Norwich Research Park
 Colney
 NORWICH NR4 7UT

ents ADP number (if you know it)

8097727001

ou are declaring priority from one or more
 ier patent applications, give the country
 the date of filing of the or of each of these
 ier applications and (if you know it) the or
 h application number

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

is application is divided or otherwise
 ived from an earlier UK application,
 e the number and the filing date of
 earlier application

Number of earlier application

Date of filing
(day / month / year)

statement of inventorship and of right
 grant of a patent required in support of
 request? (Answer 'Yes' if:

NO

any applicant named in part 3 is not an inventor, or
 there is an inventor who is not named as an
 applicant, or
 any named applicant is a corporate body.
 note (d))

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form.
Do not count copies of the same document

Continuation sheets of this form

Description

11

Claim(s)

2

Abstract

-

Drawing(s)

2 x 2

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application

Signature

ip21 limited
by WJ

Date 01/03/00

12. Name and daytime telephone number of person to contact in the United Kingdom

WILLIAM JONES

Warning

01603-457008

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first obtaining written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 55555.
- Write your answers in capital letters using black ink or you may type them.
- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.
- If you have answered 'Yes' Patents Form 7/77 will need to be filed.
- Once you have filled in the form you must remember to sign and date it.
- For details of the fee and ways to pay please contact the Patent Office.

IMPROVEMENTS IN CORNER PROTECTORS

Field of the Invention

The invention relates to corner protectors.

In this patent specification, a corner protector is a fitment so sized and shaped as to embrace a corner region of a picture frame, poster card sheet, mounted art print, shrink-wrapped art print, or the like, between opposite surfaces in a releasable manner so as to afford temporary protection to the corner edges whilst the picture frame etc is in storage or in transit and in retail display.

The State of the Art as Known to the Applicant

Corner protectors are in widespread use and are conventionally made of stiff laminated and/or corrugated card, folded up into a generally triangular shape, and defining in end elevation a rectangular opening into which the corner region of the picture frame is inserted.

Usually the triangular face of such a conventional card-folded protector is then stapled temporarily to the back of the wooden frame of the picture so as to stop it coming adrift before the user is subsequently ready to remove it.

5 These known forms of corner protector work well up to a point but they have drawbacks. Chief amongst these drawbacks is the need of course to remove the staples from the back of the frame in order to get the corner protector off the picture frame edge when the picture is to be hung and displayed. Usually the staple gun will have forced the metal staple far enough into the wooden picture frame for it to be a nail-breaking task to remove the staples.

10 It is therefore relatively common for picture handlers, when the picture is to be hung and displayed, simply to rip the relatively fragile card protector off the corner region of the frame and leave the staples in place. The reasoning is of course that the staples, being fixed to the back of the frame, won't be seen during any display of the picture since the back of the frame abuts the wall or other
15 surface on which the picture hangs.

This is an admirably practical view but nevertheless it cannot be denied that the presence of the staples, and inevitably at least some area of card still surrounding them on the picture frame back, is unsightly.

It has also been known to hamper the insertion and stapling of future corner
20 protectors to the same picture frame, because these protectors are of course one-shot-use items whose cost of manufacture is trivial compared with the value of the job they are designed to do and the frames whose corner edges they are designed to protect. The same picture will therefore have up to four corner protectors stapled to it at any one time when it is not being displayed and, after two or three
25 storages and/or transits in between successive displays, its back frame can begin to look extremely unsightly with remaindered staples sunk into it.

There is also a foreseeable risk of the next set of staples not taking proper hold, or even springing back out of the frame, should they happen to hit one of the old previous remaining staples as they are driven in. This could conceivably extend as far as damaging or distorting the frame itself.

- 5 There is a need therefore for some new form of corner protector which at least reduces the drawbacks of these conventional card-based ones with their stapled attachments.

Summary of the Invention

- 10 In its broadest aspect the invention is embodied in a corner protector, whose opposite frame-embracing faces are resilient and bowed so that, in use, the corner region of the picture frame must force its way into position between the opposite faces of the protector and will thereafter be frictionally gripped between them until the protector is subsequently released by pulling it off against the frictional resistance.

- 15 Such a protector needs no stapling into place (although there is no theoretical reason why it should not also receive that treatment) and so, if desired, can be re-used rather than being a one-shot-use item. This lack of damage to the protector itself means that it can be produced in more expensive materials than the traditional laminated or corrugated staple-fixed protectors reviewed above. It
20 could for instance be extruded or moulded from plastics material whilst still being economically feasible and it could, in such instances, form an altogether tougher and more effective protector than the all too easily frayed, split, and otherwise damaged card ones.

- 25 Making the protector out of a plastics material has other advantages. It makes it possible for the protector to be translucent and indeed to be wholly or partially transparent without any extra manufacturing cost and with no adverse effect at all

on its inherent strength and protective capabilities. It can also be self-coloured with attractive results.

5 It is particularly advantageous if one at least of the frame-gripping opposite surfaces of the protector is wholly or partially transparent, because then the protector can be used in combination with a simple card or paper sleeve, for simply carrying identifying or advertising material on one or more of its faces and fitting, in use, inside the protector so that the transparent portion of the protector enables the identifying and/or advertising message on the sleeve to be viewed.

10 Because the protector relies essentially on its inherent ability to grip the corner region of the frame between its opposite surfaces, anything which will increase the gripping-capability without making it unduly onerous to squeeze the frame into the protector initially; will be an advantageous and inventive add-on to the broad inventive concept.

15 Preferably therefore one at least of the frame-gripping opposite surfaces of the protector is ribbed, dimpled, inherently corrugated and/or just roughened so as to enhance its frictional grip in use. Whilst such surface treatments are known in themselves, none of them is possible with the conventional card material hitherto used for protectors. No such treatment would therefore be contemplated by the skilled but nevertheless conventional thinker in this field. To add any – or any
20 combination – of them to a protector embodying the broad concept of the present invention is therefore inventive if – as is believed to be the case – such an additive combination is a new one.

25 The invention includes within its scope the combination of a protector of the kind just defined (i.e. with one at least of its frame-gripping surfaces treated to enhance its gripping effectiveness in use) with a frame whose own surface, at its corner region or regions, is grooved, indented, or otherwise so treated that as the protector is pushed onto the frame corner region in use, the ribs, dimples, or the

like of the protector surface will slide and/or snap into the grooves, indentations etc of the frame surface. It also extends to such a frame itself.

Clearly no frame forming part of the combination just defined is likely to have such a treatment on its outer surface (i.e. that surface which, when the picture is hung or displayed, is visible) although it is not theoretically impossible. What is more likely to happen is that the back surface of the frame will be so treated. In another advantageous development of the invention, however, the grooves and/or dimples etc are formed in the edge surface of the frame instead of — or as well as — being formed into the back surface.

This latter development has the advantage that it is not necessary, if only the edge surface of the frame is so treated, for the user to first work out which surface of the protector is internally treated and then push the protector onto the frame corner appropriately. Instead he can simply push the protector into place quickly without having to differentiate between its opposite frame-gripping surface internal treatments.

Although the invention has been discussed so far in relation to its use generally on picture frames, protectors embodying the inventive concept may be used on poster card sheets. These are notoriously fragile and all too often creased and bent or frayed, especially at their corner regions, by the time the purchaser gets them home from the gallery or shop purchase point. Conventional card stapled corner protectors simply cannot be used with poster card sheets. Protectors embodying the invention by contrast can with appropriate care be pushed into and subsequently removed from position with no real danger of damage to the poster sheet.

The invention includes within its scope a corner protector; or a frame-and-protector combination; or a frame, substantially as described herein with reference

to and as illustrated in any appropriate combination of the text and drawings comprising this patent specification.

Brief Description of the Drawings

5 Practical embodiments of the invention will now be described with reference to the accompanying drawings in which:

Figure 1 shows one corner protector, embodying the invention, in perspective;

Figure 2 shows the same corner protector viewed en-on;

Figure 3, again in perspective, shows another corner protector embodying the invention;

10 Figure 4 shows yet another one, again in perspective;

Figure 5 is a simplified view of a further corner protector embodying the invention, drawn in perspective but with its front surface removed for clarity;

Figure 6 is a perspective view of one edge region of a wooden picture frame modified to work in combination with either of the protectors of Figures 4 and 5;

15 Figure 7 shows a card or paper sleeve for use with any of the protectors of Figures 1 through 5; and

Figures 8, 9 and 10 show a preferred embodiment incorporating edge ribbing.

Description of the Illustrated Embodiments

The corner protector of Figure 1 is intended to protect one of the four corner regions of a wooden picture frame when the frame is in storage, transit or retail display. It is made from resilient plastics material such as polypropylene and it is both translucent and transparent throughout allowing bar code scanning of the price ticket inserted between the corner and the frame. Its two triangular walls 11, 12 together with its rectangular bases 13 and 14 are formed integrally as one continuous moulding and the walls 11, 12 and the bases 13, 14 of a similar thickness as one another and each the same uniform thickness throughout their respective extents.

As Figure 1 attempts to show, wall 12 is noticeably bowed towards wall 11. Figure 2 shows this more clearly. The gap A between the two triangular walls 11 and 12 is appreciably (although not excessively) greater than the gap B. Gap A is the distance between walls 11 and 12 where they join integrally bases 13 and 14. Gap B is the distance between the same two walls at the mid-region of the opening defined between them.

In use, the corner region of (for example) a wooden picture frame such as that shown in Figure 6 is pushed into position by forcing its way between the resilient opposite faces 11, 12 of the corner protector until its own corner edge abuts the right-angled join between the protector bases 13 and 14 inside the protector body. The corner protector is of course so shaped and sized that it would be a snug frictional fit around the wooden frame edge if the gap A defined between its walls 11 and 12 were constant. In reality because of the bowing as illustrated by gap B the protector grips the frame — thanks to the inherent resilience of its plastics walls — more tightly than would be the case if gap A were indeed the same as gap B across the width of the protector.

Frictionally gripping the corner region of the frame in this way, the resilient plastics protector does its job, because its walls are thick enough to withstand

knocks and scuffing externally whilst being inherently resilient enough to be re-used several times. When the corner protector is released from the frame it is protecting by pulling it off against the frictional resistance exerted by its walls 11 and 12 on the frame surfaces, the inherent resilience of the material from which it is made is sufficient for it to resume its Figure 2 state. In normally intended re-usage of these relatively cheaply produced articles, that resilience will not be unduly affected by cumulative stress fatigue.

The corner protector of Figure 3 works in the same way as that of Figure 1 but there are differences between the two. In the Figure 3 embodiment, one of the frame-gripping walls 16 of the protector is not geometrically identical to the opposite wall 17. The latter wall 17 is, like the walls 11 and 12 of Figure 1, essentially triangular in shape. Wall 16 by contrast is cut away to illustrate that the invention is not restricted to simple geometrically-overlaid wall shapes such as the walls 11 and 12 of Figure 1.

Another difference is that a portion 18 of wall 16 of the Figure 3 protector is transparent. Indeed in this particular case it is a cut-out formed in the material of wall 16. It could be filled in with transparent material or it could contain oppositely-coloured material; or both.

In Figure 4 one of the frame-gripping walls 17 of the protector shown is, like those of the previous embodiments, bowed towards its opposite wall; but ribs 19, 21 running parallel to the respective right-angle-joined bases 13 and 14 are formed on the inside (i.e. on the frame-gripping) surface of wall 17.

These ribs 19, 21 project internally from wall 17 so that, when the protector is pushed into place over a picture frame, they will simultaneously enhance its gripping action and resist any inadvertent dislodging of it once it has been pushed fully home. They could be so positioned – and the protector overall so proportioned – that, when they are fully home, they snap into place just inside the

inner edges of the frame (i.e. the edges adjacent the periphery of the picture itself when viewed in its frame).

Alternatively, or additionally, ribs such as the ribs 19, 21 could engage in grooves 22, 23 formed in the frame surface as shown in Figure 6. The frame 24 is wooden as previously indicated. The ribs 19 and 21 of the Figure 4 corner protector snap into the grooves 22 and 23 of the wooden frame back surface when the protector is fully home.

As Figure 6 also shows, edge grooves 25 can be formed in the picture frame as well as (or instead of) the grooves 22 and 23. In such an instance the protector could be correspondingly ribbed as shown at 26 and 27 in Figure 5 (in which one of the frame-embracing walls of the protector has been removed for clarity and only a portion of the remainder of the protector body is shown).

In Figure 7 a simple fold-up card or paper sleeve is illustrated which, in use, fits inside any of the translucent protectors shown in Figures 1 through 5. The sleeve can have identifying and/or advertising material displayed on its major face D and/or on either of its other faces E and F. It would of course fit into (for example) the protector of Figure 4 so that its face D underlay the non-bowed wall which faces the ribbed wall 17 of that Figure 4 embodiment. Any attempt to fit it the other way round would result in its being distorted as soon as (in this particular embodiment) ribs 19 and 21 began to bite against the picture frame surface as the protector was pushed fully home.

Although all the protectors illustrated so far have one, only, bowed wall 12 preferably both walls should be bowed towards and away from the other. There are practical commercial reasons why this is desirable as well as the increased frictional gripping capacity obtained thereby in use.

In Figure 8, the protector surfaces bow concavely towards each other and are reinforced with external ribs or lips 28c, 28d, 28e, 28g. The remaining outside edge surfaces of the protector -- other than the apex edge 30 -- are also thus lipped or ribbed as indicated by 28a, 28b, 28f, 28h.

- 5 Figures 9 and 10 illustrate this in more detail. Figure 9 is a view from the side of the protector (i.e. looking in the direction of arrow Y in Figure 8). Figure 10 is a view from above (arrow X in Figure 8). Both views are part-views only but illustrate the ribbing which is continuous along the respective edges.

- Because the clear corners protect the retail price ticketing and description, it is possible to produce high definition printed price ticketing, on cheap paper, using a cheap printing paper. Rather than at present having to print expensive abrasion-resistant labels.

Also, many retailers fear that their customers will remove such labels and place on more expensive frames. This system makes it very difficult for this to happen.

- 15 Because of quality on-edge retail ticketing, frames can be displayed on edge like books on a bookshelf. However the "ribs" of the corners would catch against each other, so the ribs are given a specific radius to prevent this.

- One of the important design features is the ability of the corner protectors to redistribute impact forces from the vulnerable corner regions of the frame in use; via the "ribs" (mentioned above) which in preferred embodiments surround the mouth periphery of the protector and (preferably) optionally its edges.

These extra-thick ribs or flanges absorb and dissipate the forces. They are thickened regions which extend along the edge lines externally and/or internally of the protector.

- 25 In the design of the corner protector moulding tool, the mould walls are reverse tapered and the bead around the periphery of the protector mouth is reduced and

tapered to reduce "catching" as corners of frames are dragged alongside one another. This also aid "ejection" in moulding and increases flow , reducing cycle times and cost of manufacture.

5 The mould is also designed to have a small "blip" which has minimal visual product effects, and will be almost invisible, but is added to design for fast efficient cycle times in production environment.

Such a blip could be located at the apex of the triangular mould, on face and/or edge.

CLAIMS

1. A corner protector whose opposite faces are resilient and bowed so that, in use, a corner region of the frame to be protected must force its way into position between the opposite faces of the protector and will thereafter be frictionally gripped between them until the protector is subsequently released by pulling it off against the frictional resistance.
2. A protector according to Claim 1 and characterised by the feature that substantially the whole protector comprises a plastics moulding or extrusion.
3. A protector according to Claim 1 or Claim 2 and characterised by the feature that one at least of the protector's frame-gripping opposite surfaces is wholly or partially transparent.
4. A protector according to any preceding claim and characterised by the feature that one at least of the frame-gripping surfaces is so ribbed, dimpled, corrugated and/or otherwise surface-treated as to enhance its frictional gripping capability in use.
5. With or for a protector according to Claim 4 a frame whose own surface, at its corner region, is grooved, indented and/or otherwise so treated that as, in use, the protector is pushed onto the corner region, the ribs, dimples etc of the protector will slide and/or snap into the grooves, indentations etc of the frame.
6. The invention of Claim 5 and characterised by the feature that the frame surface so treated is an edge surface of the frame.
7. A protector according to Claim 3 or Claim 4; or the invention of either of Claims 5 and 6; with the further addition of a sleeve fitting, in use, between the protector and the frame and carrying identifying and/or advertising indicia.

8. The invention defined in any of the preceding claims in combination with a frame in the form of a poster card sheet.

9. A corner protector; or a protector-and-frame combination, or a frame --
substantially as described herein with reference to and as illustrated in any
5 appropriate combination of the text and drawings.

1/2

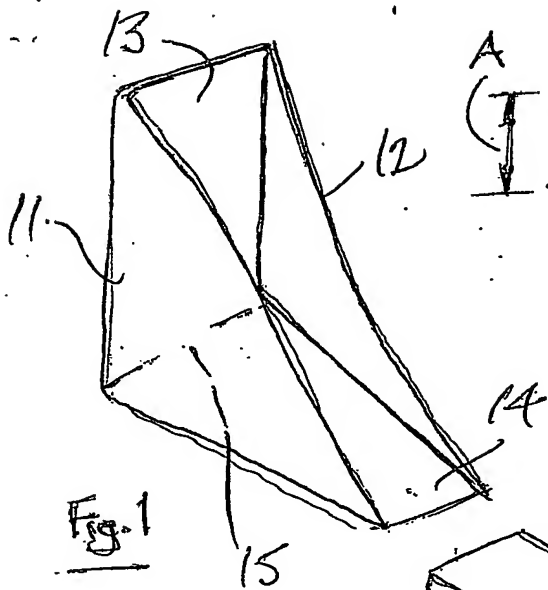


Fig. 1

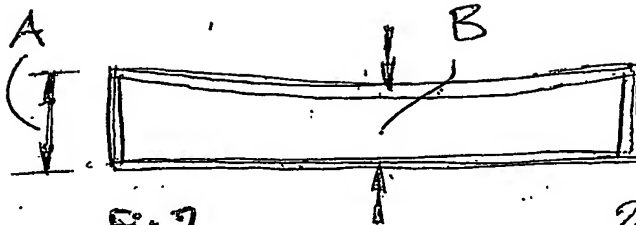


Fig. 2

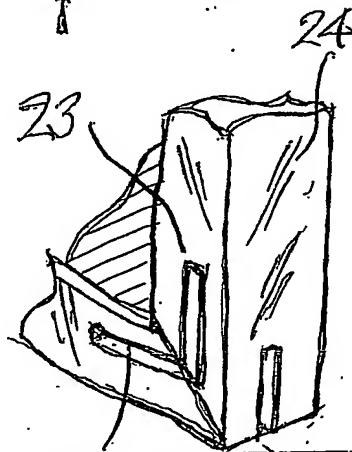


Fig. 6

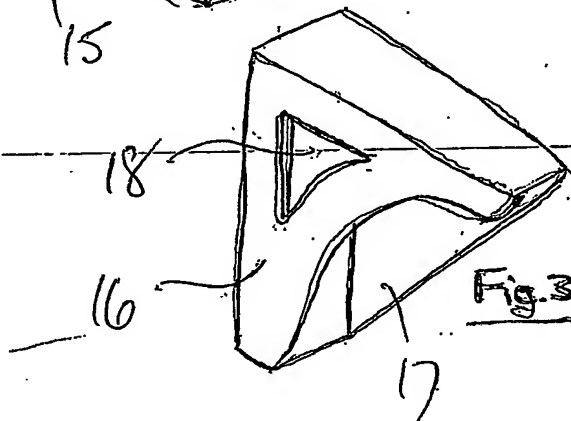


Fig. 3

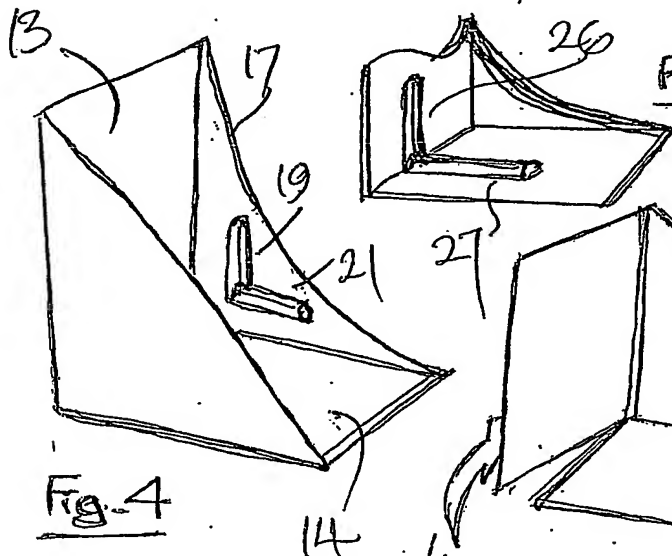


Fig. 4

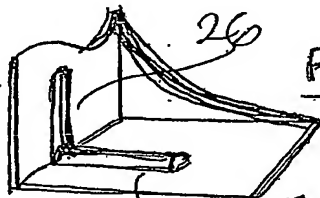


Fig. 5

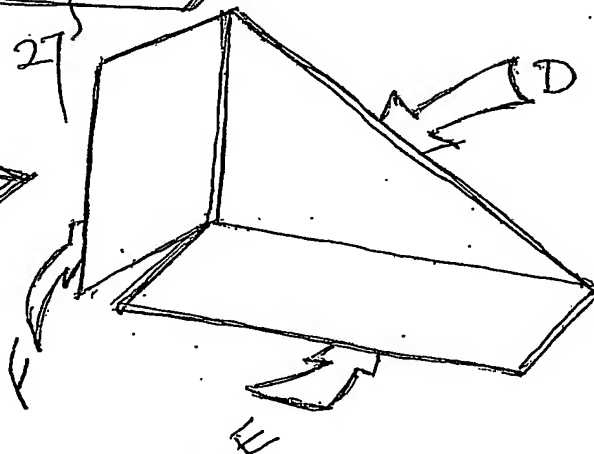
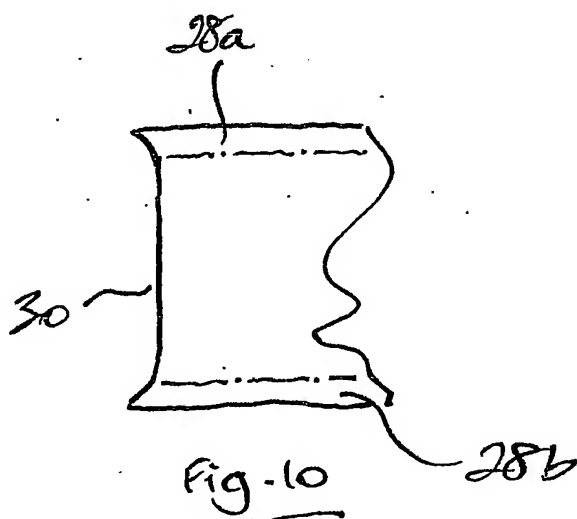
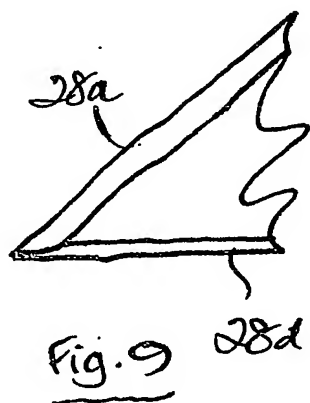
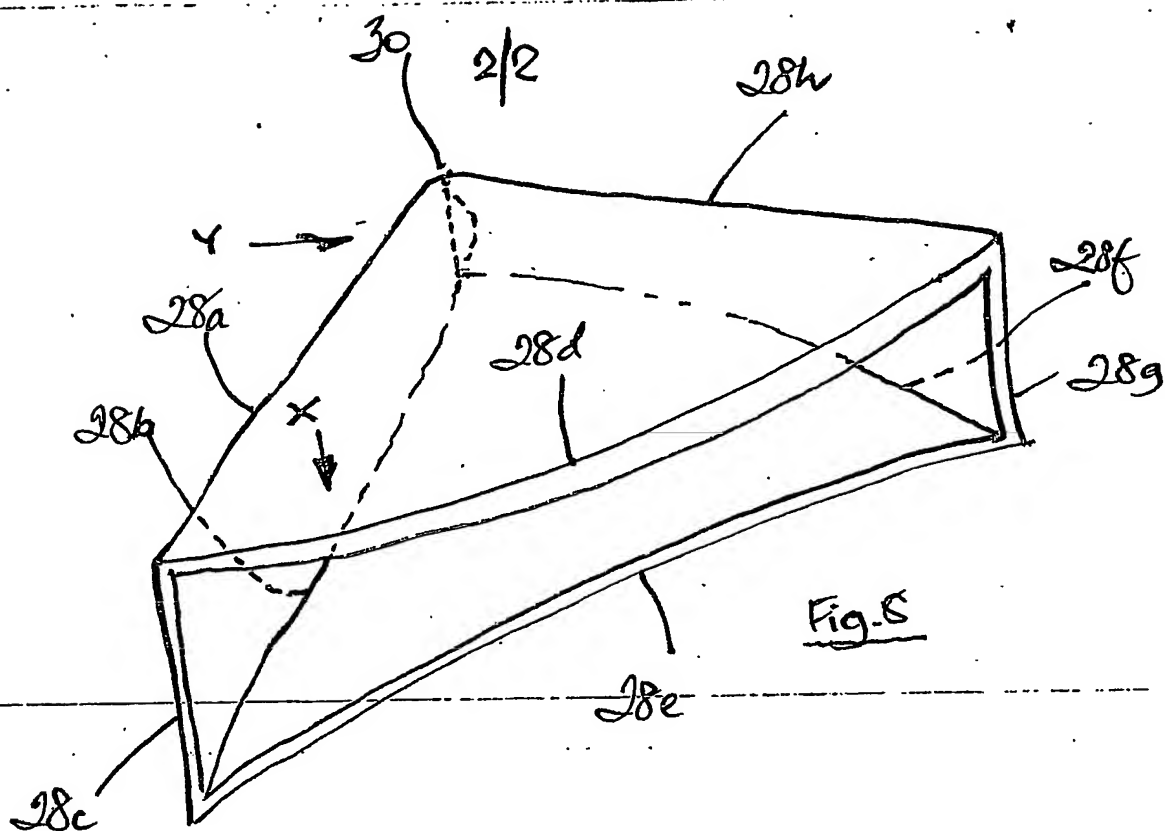


Fig. 7



**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☒ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.